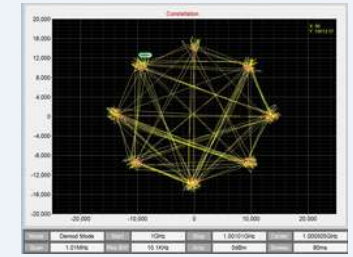
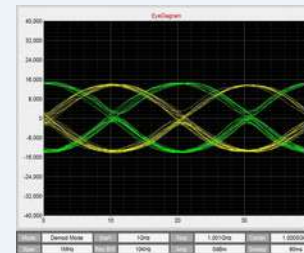
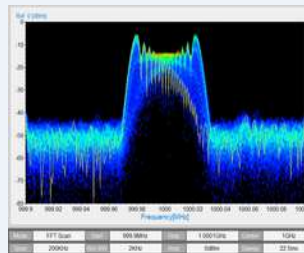
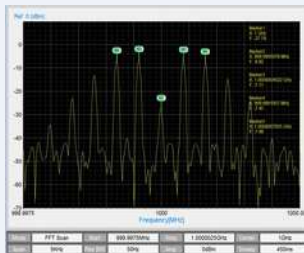
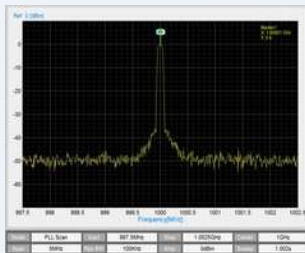




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# VSA6G2A Zigbee signal testing

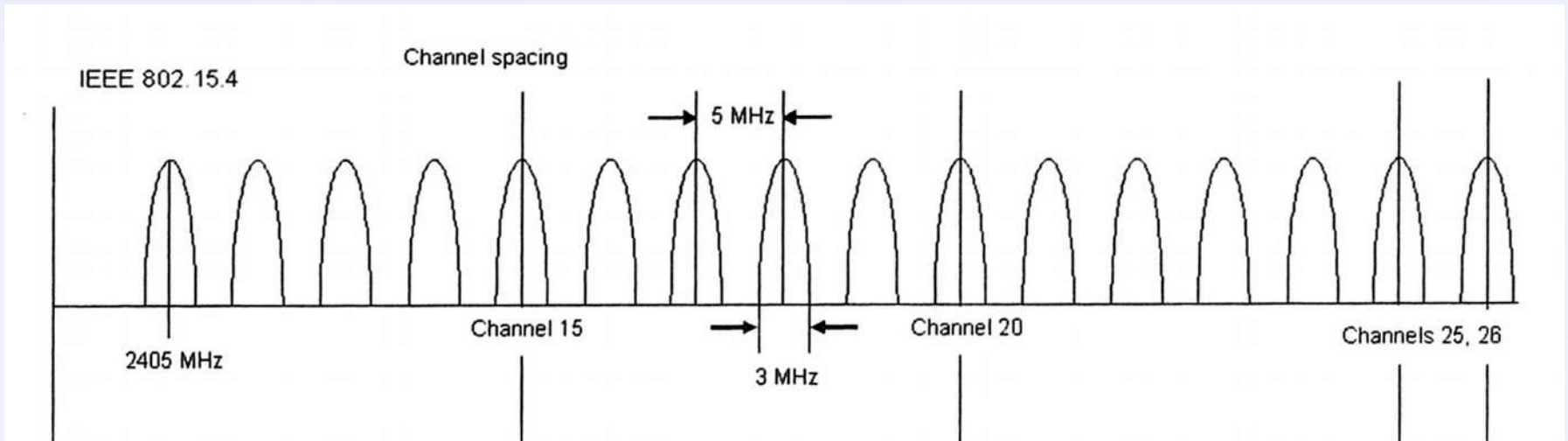




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## Zigbee channel frequencies



First channel in 2.4G ISM band is ch11, last channel is ch 26, total 16 channels.

Channel space is 5MHz

Zigbee signal bandwidth is 3MHz



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## 2.4G band Zigbee module testing

1: VSA6G2A will be connected to Zigbee module CC2530.

2: Zigbee module CC2530 install on the SmartRF05 board.

3: SmartRF Studio tool from TI will be used to control the Zigbee module via SmartRF05 board.







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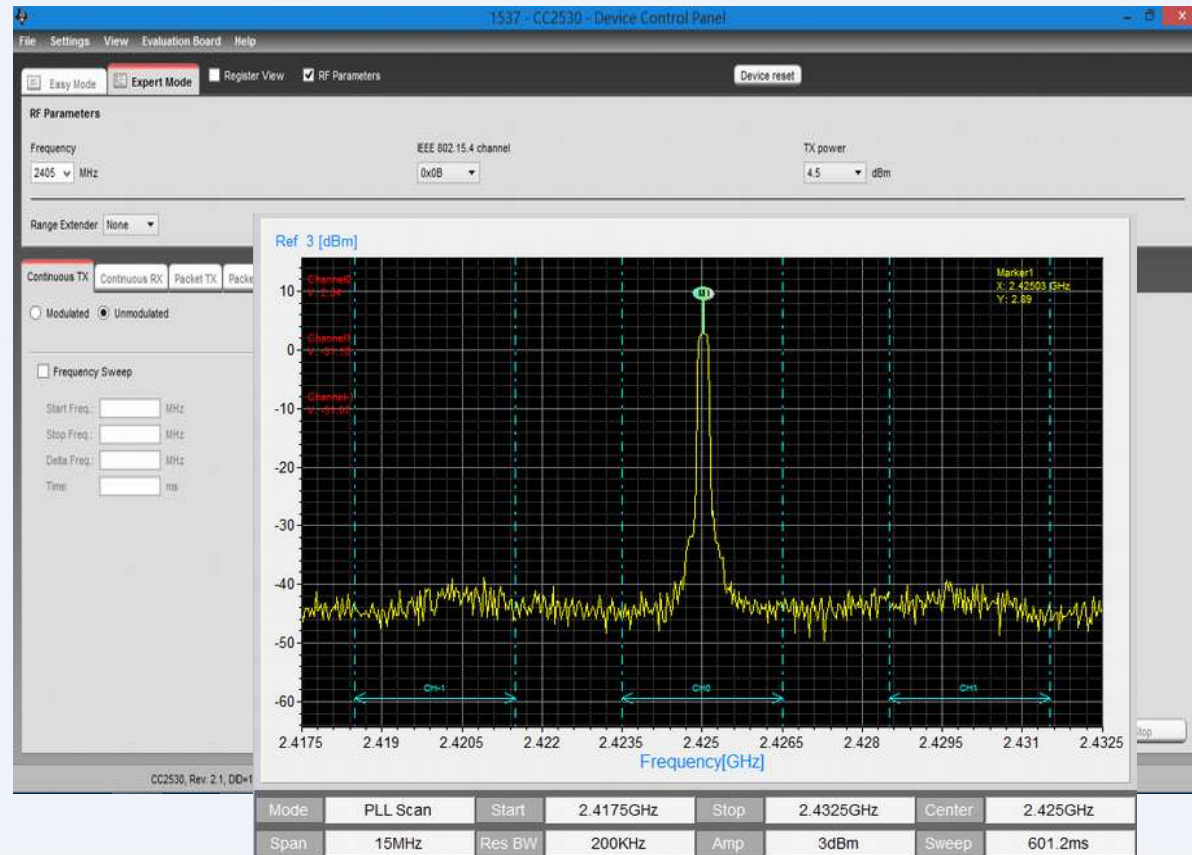
# 2.4G band Zigbee module testing

Set Zigbee module CC2530 to channel 15, frequency is 2425MHz. Output power is 4.5dBm.

VSA6G2A measure with freq is 2.42503GHz, amp is 2.89dBm

Freq offset is 30KHz

Amp offset is 1.61dB which caused by cable loss.



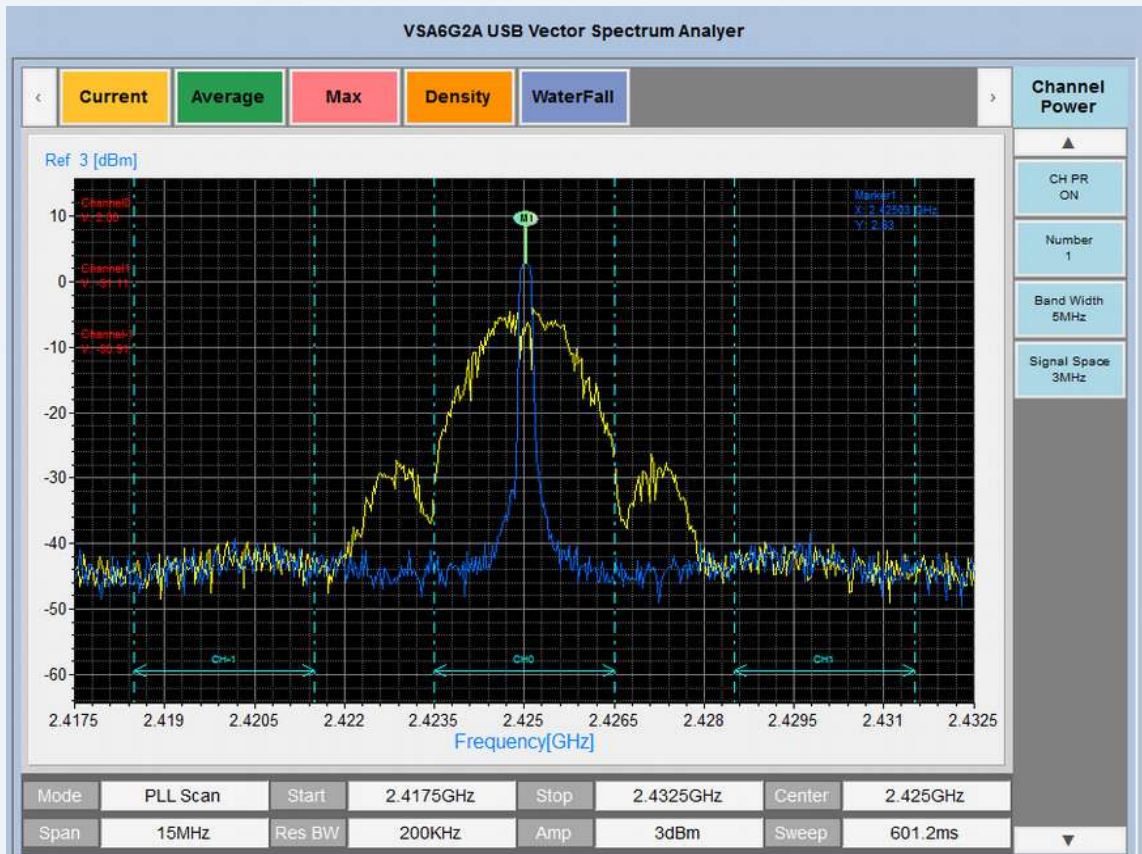


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## 2.4G band Zigbee module testing

Zigbee module work at continuous modulation. VSA6G2A setup Unmodulation signal as reference, using Channel power to measure signal out power. It is around 2.6dBm, Signal space is 3MHz. CW power is 2.83dBm. Adjacent channel power are -31.11dBm and -30.91dBm.





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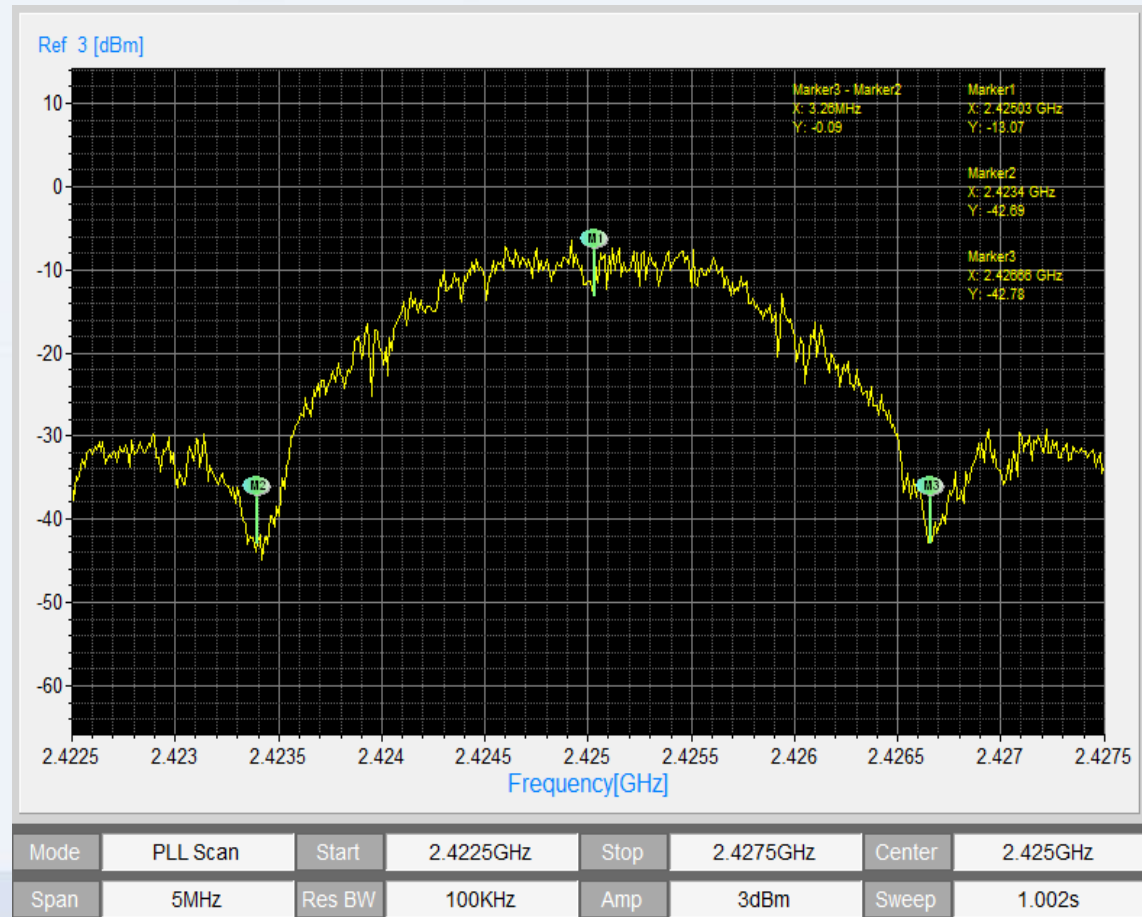
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## 2.4G band Zigbee module testing

Set Span to 5MHz to measure the modulation signal.

Using three markers to points at two notches and centre frequency.  
Set delta marker to get two notch bandwidth, it is 3.26MHz.

The depth of notch is 30dB.







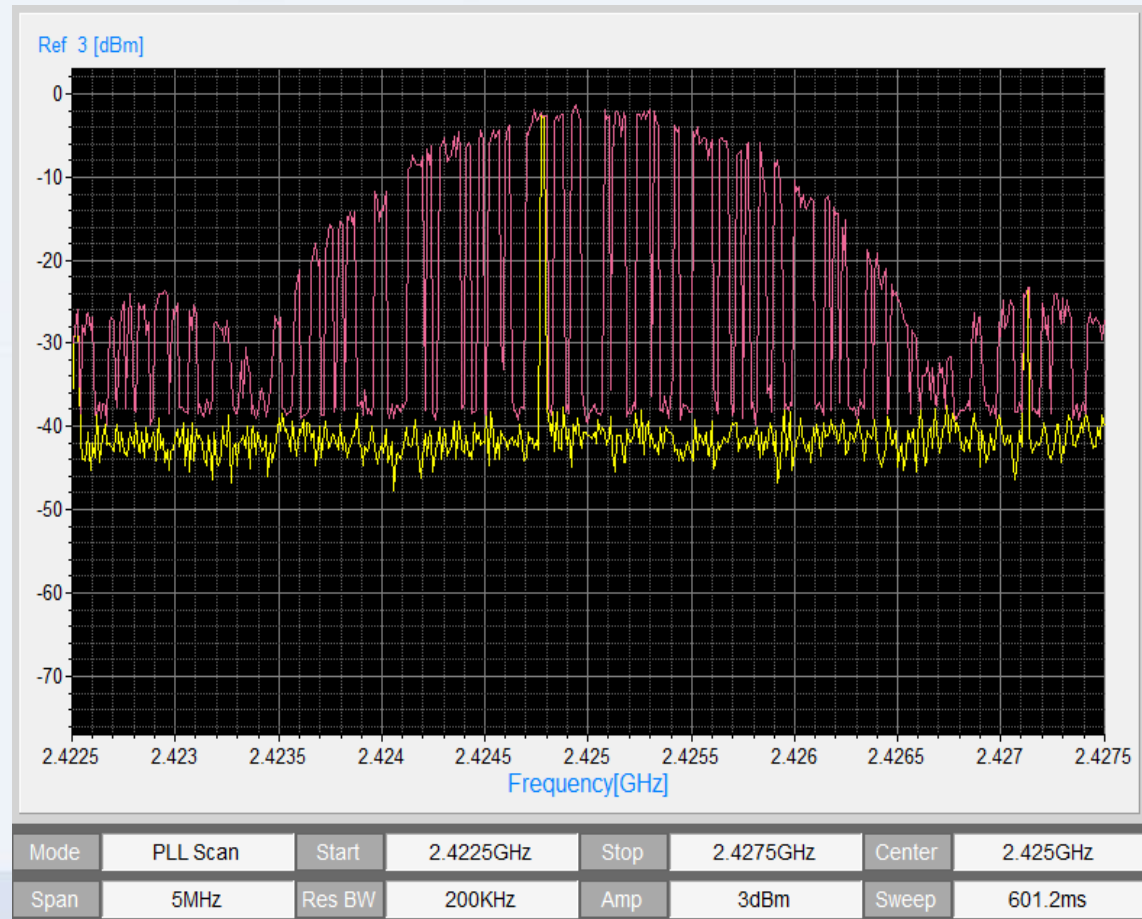
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## 2.4G band Zigbee module testing

Set Zigbee signal with Packet TX, signal will be in burst mode.

Spectrum display will be only several single pulse with jump. Please use MAX hold display to hold all pulse, the full spectrum waveform can be shown.



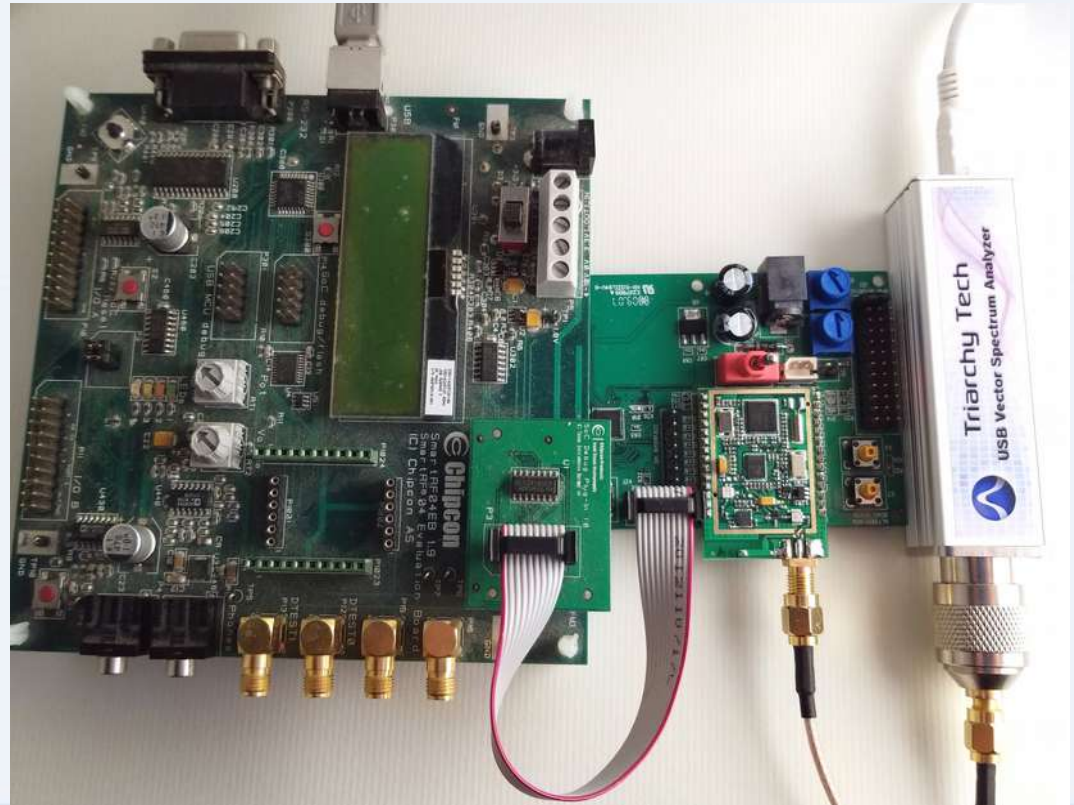


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# 5.8G band Zigbee module testing

- 1: VSA6G2A will be connected to 5.8G Zigbee module ALT5801.
- 2: Zigbee module will be controlled by SmartRF04 board.
- 3: SmartRF Studio tool from TI will be used to control the Zigbee module via SmartRF04 board.







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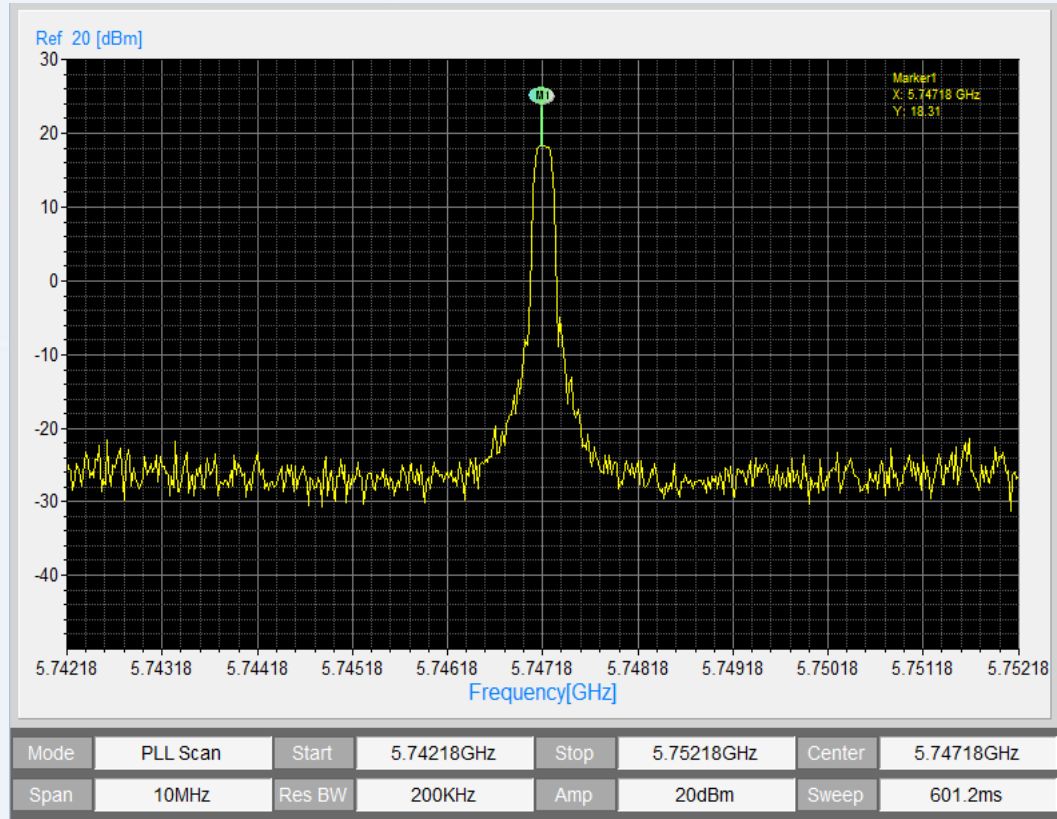
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## 5.8G band Zigbee module testing

ALT5801 module output power is 20dBm, the cable loss at 5.8GHz is around 1.5dB, VSA6G2A measure the peak power is 18.31dBm. So that ALT5801 real output power is 19.81dBm.

VSA6G2A can direct measure 20dBm power without external attenuator

Please note: please first set AMP to 25dBm~30dBm, then turn signal power to measure it





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# 5.8G band Zigbee module testing

Setup CW signal waveform as reference, then change the RF signal into modulation, then comparing

Signal waveform difference  
The modulation signal also can be shown with density display.

